

FIG. 1

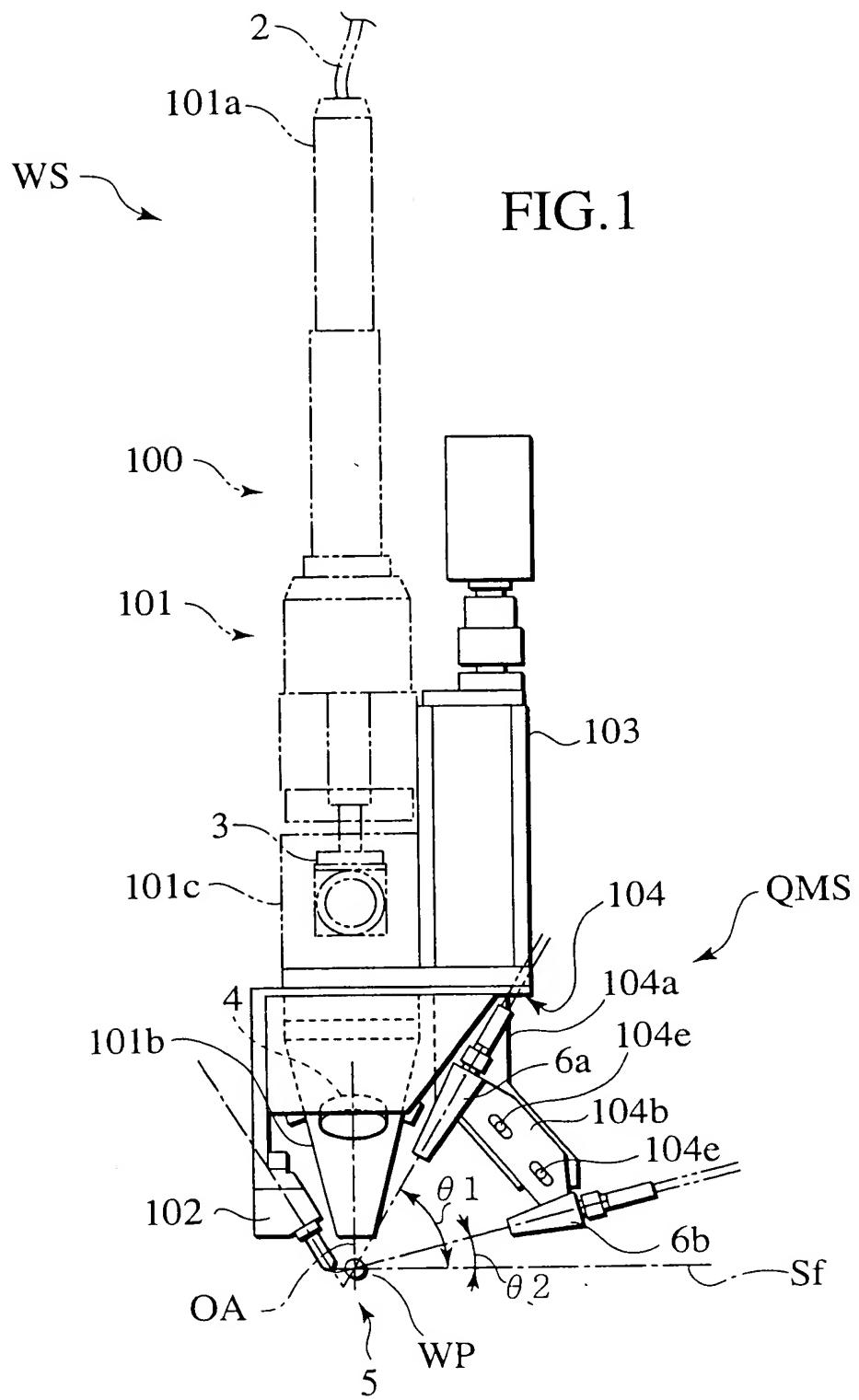


FIG.2

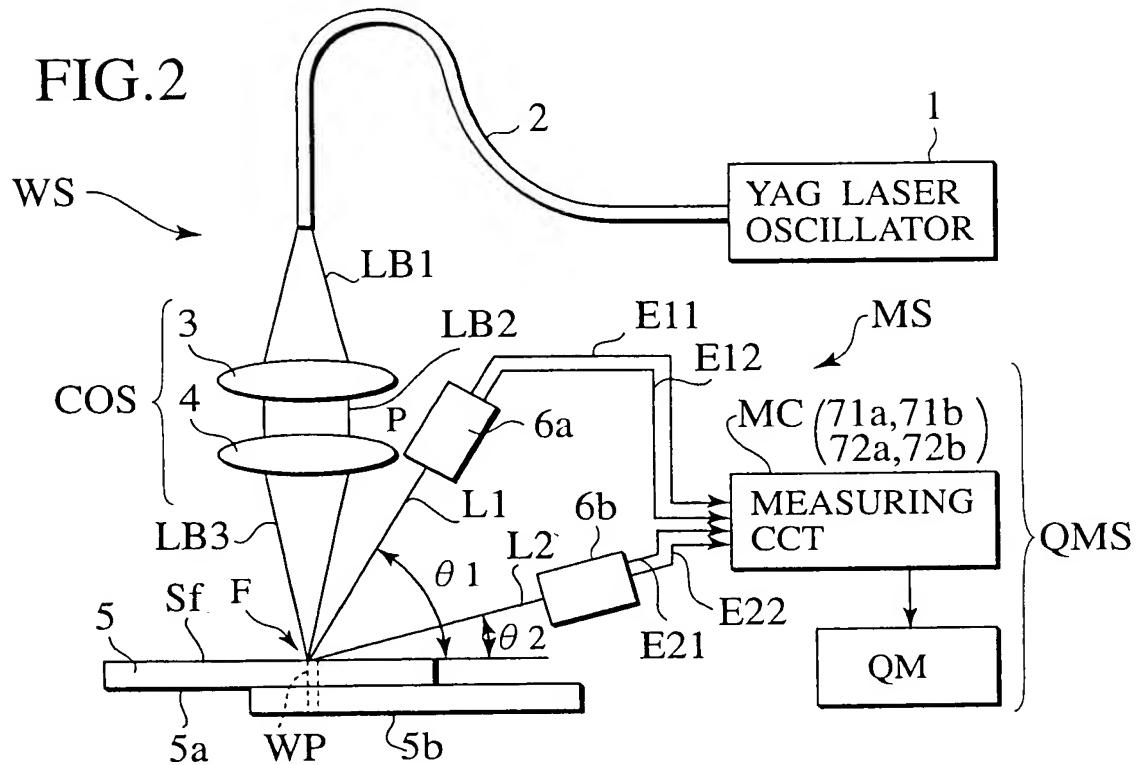


FIG.3

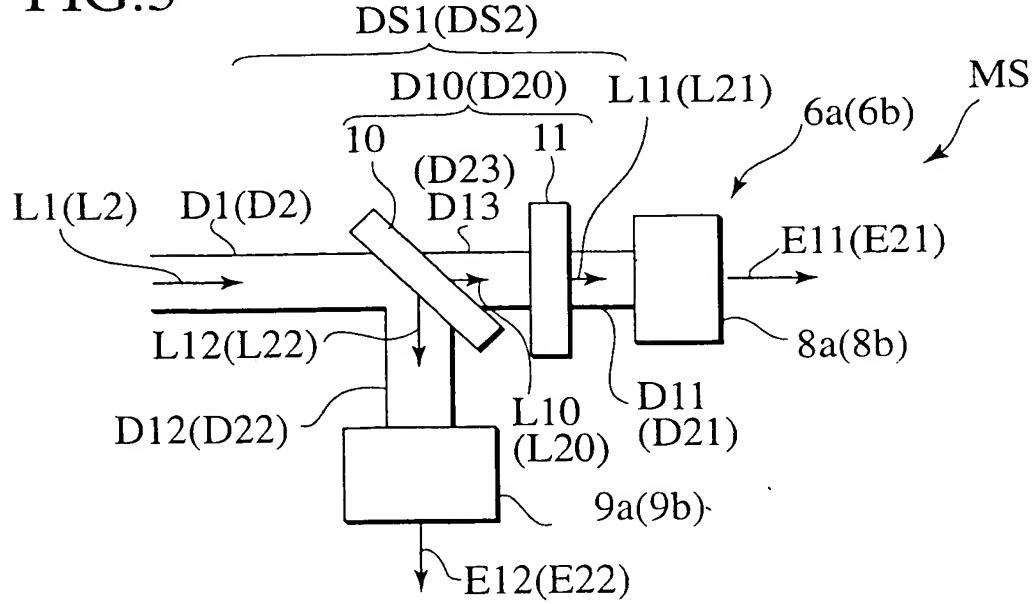
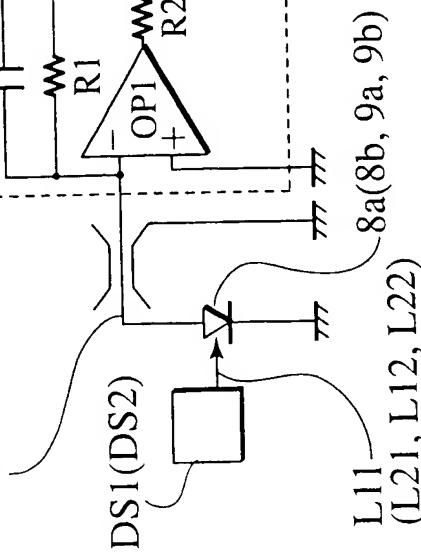


FIG.4

PL:PL1a(PL1b,PL2aPL2b)



8a(8b, 9a, 9b)
(L11, L12, L22)

6a(6b)

MC:71a(71b,72a,72b)

MS

QM

QMS

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TRI-LASER WELD QUALITY MONITORING METHOD AND SYSTEM

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FIG.5

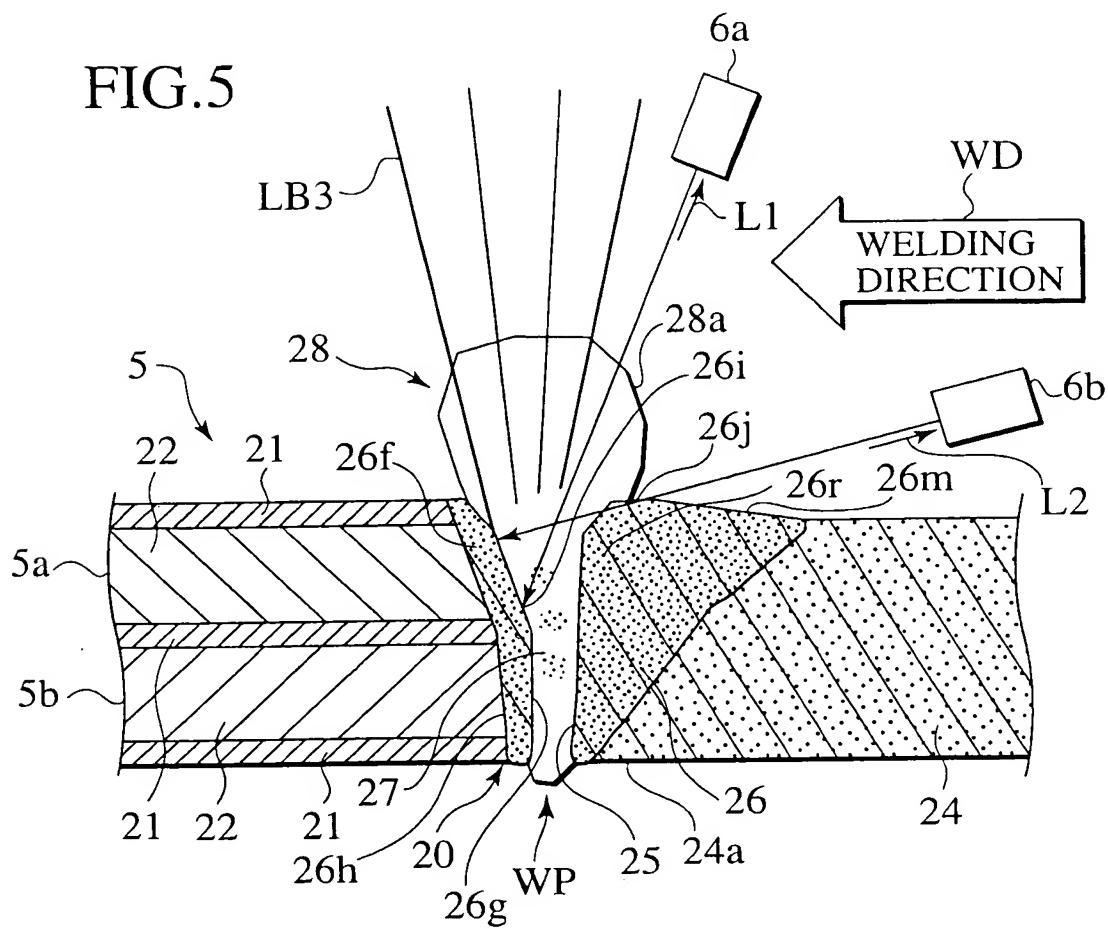
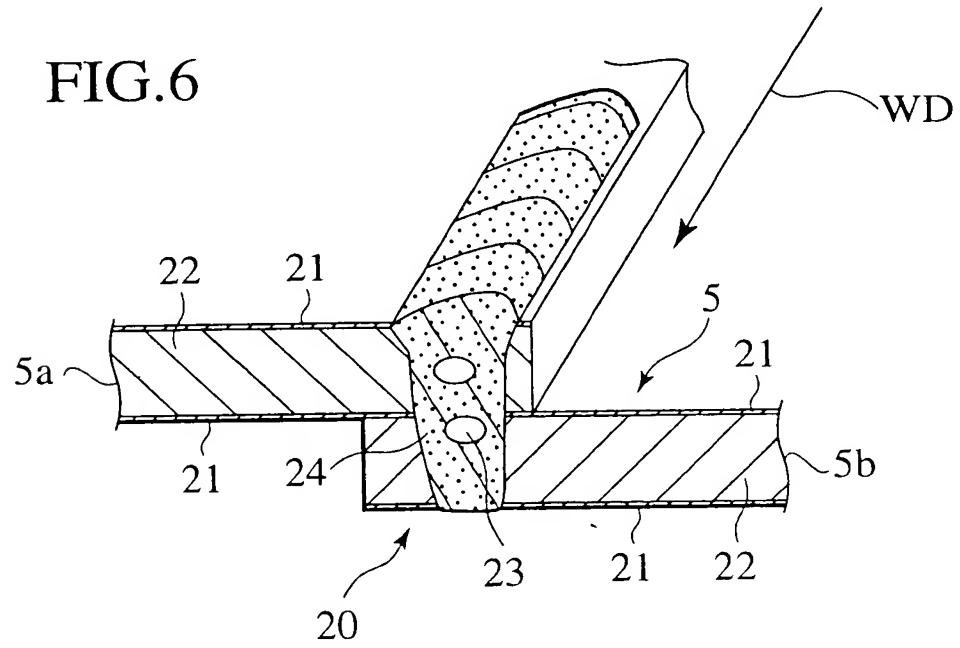


FIG.6



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FIG.7

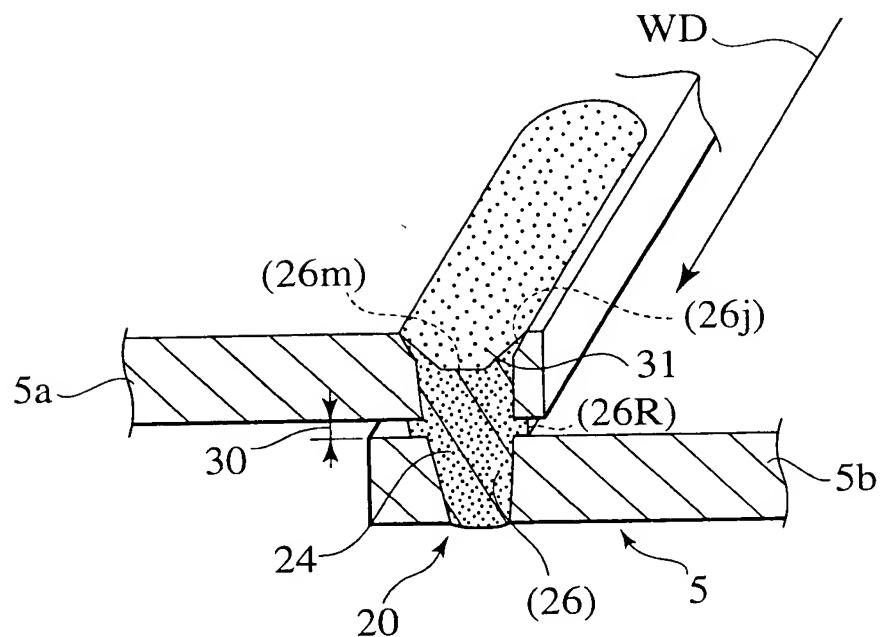


FIG.8

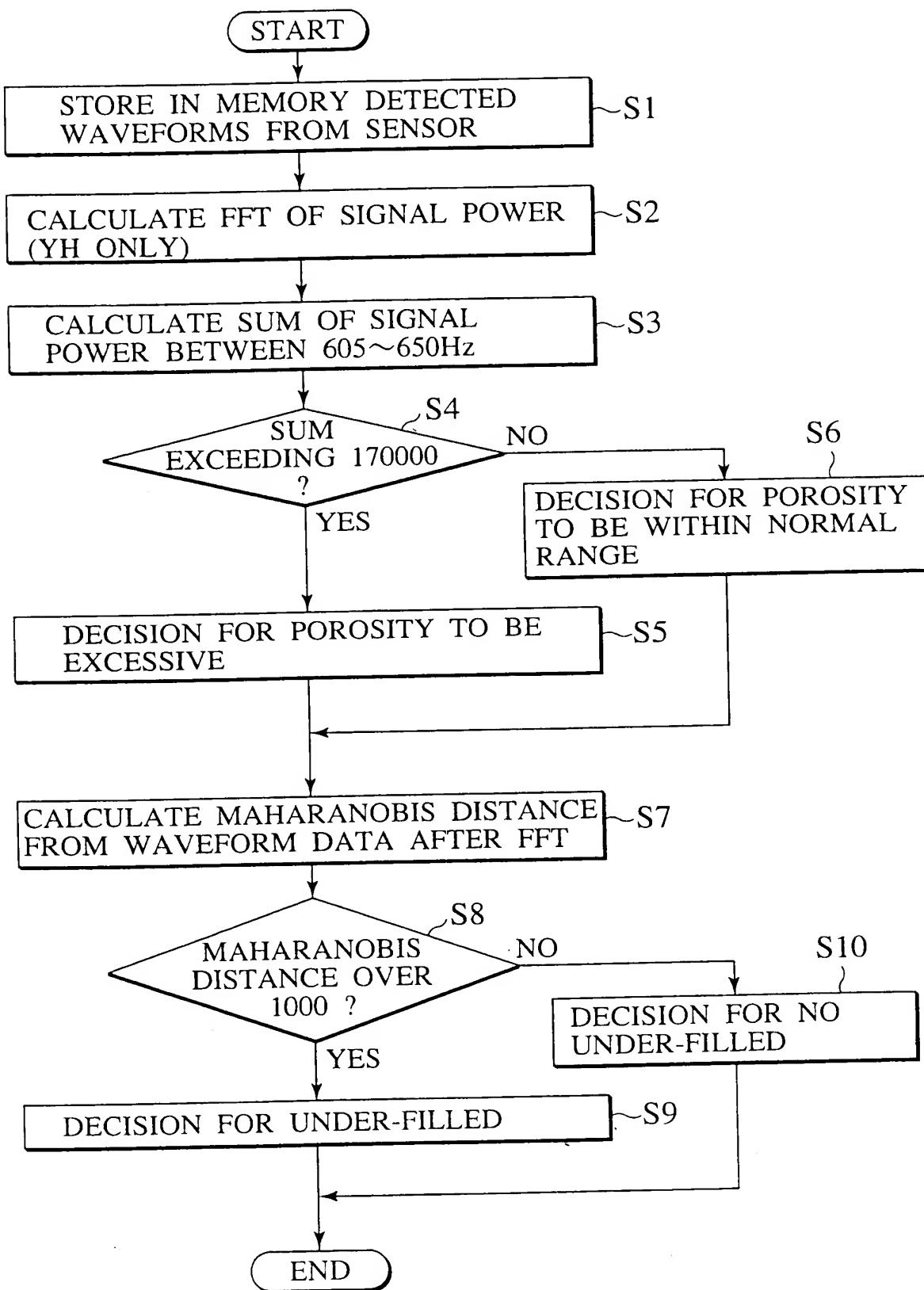
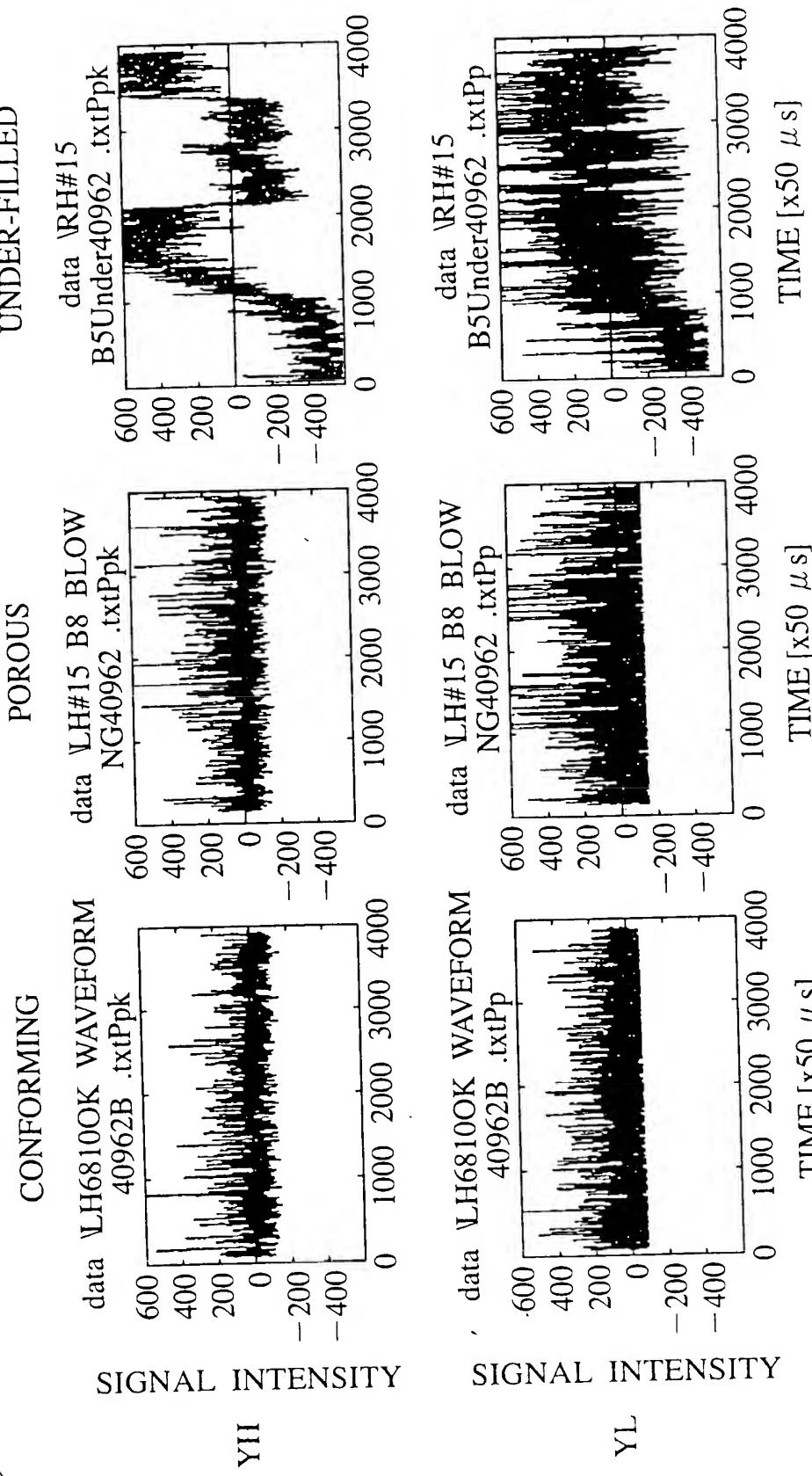
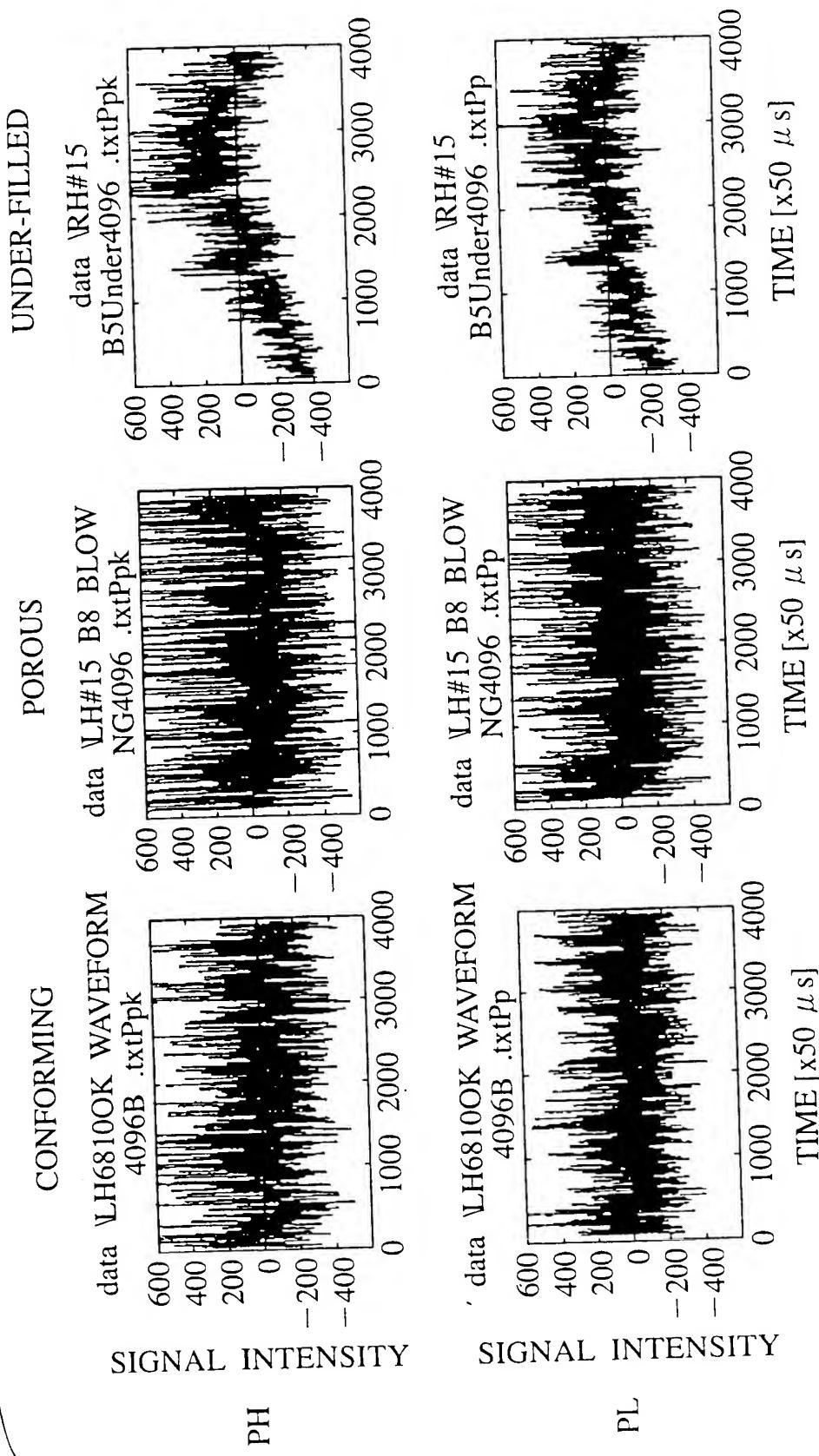


FIG.9



DETECTED WAVEFORMS UNDER BASIC WELDING CONDITIONS

FIG. 10



DETECTED WAVEFORMS UNDER BASIC WELDING CONDITIONS

FIG.11

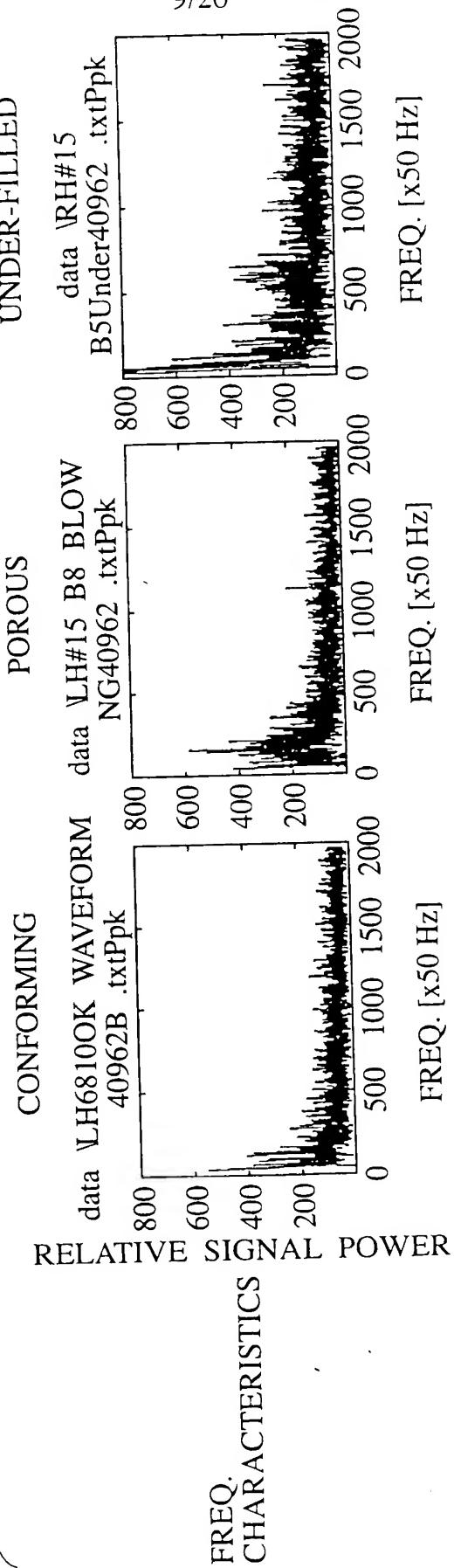


FIG. 12

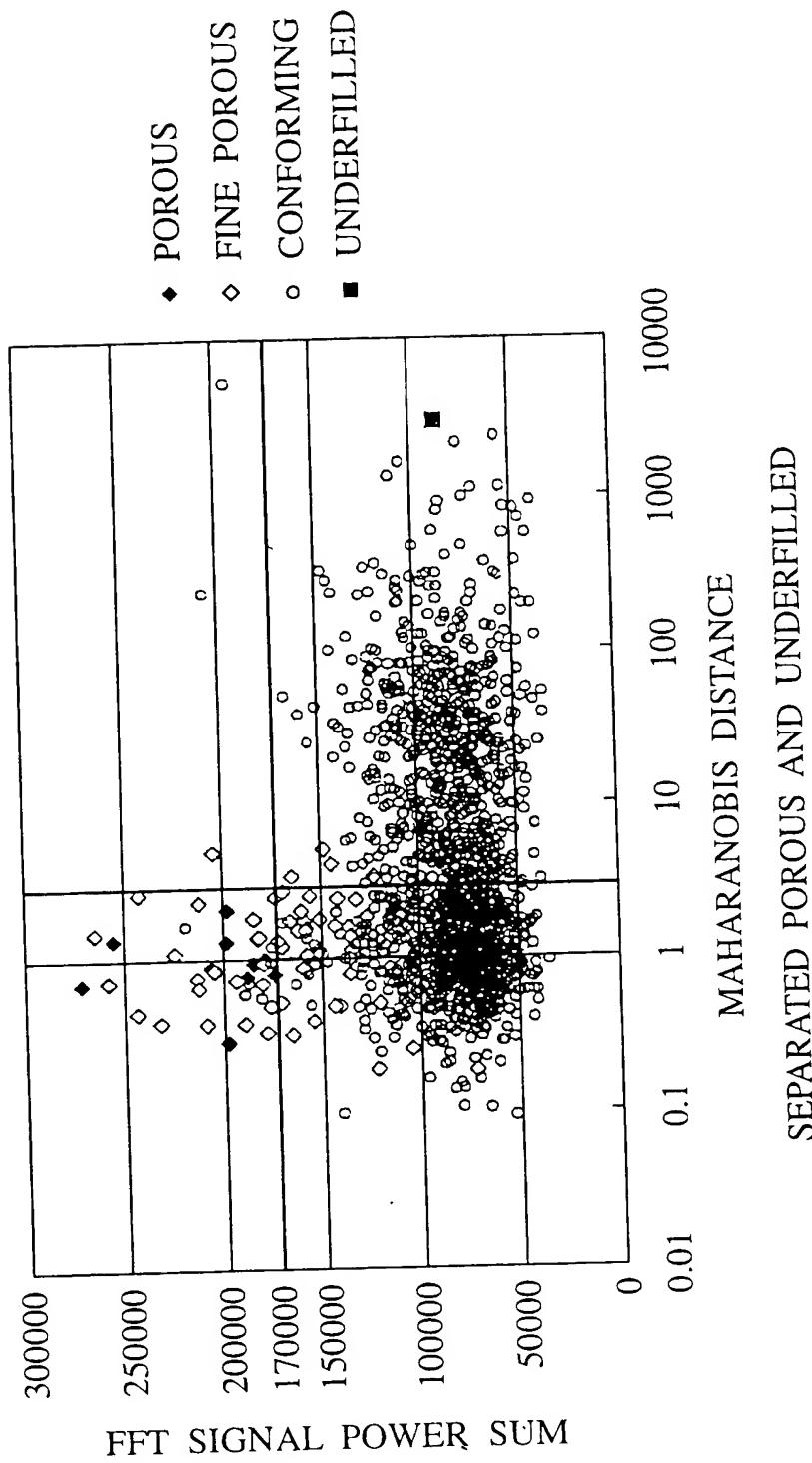


FIG.13

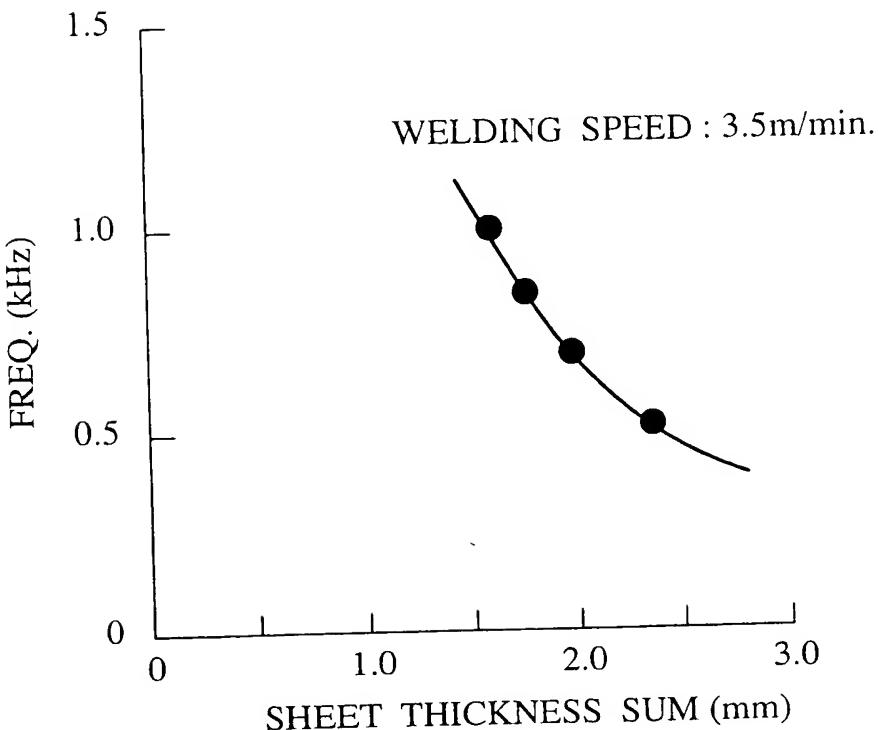
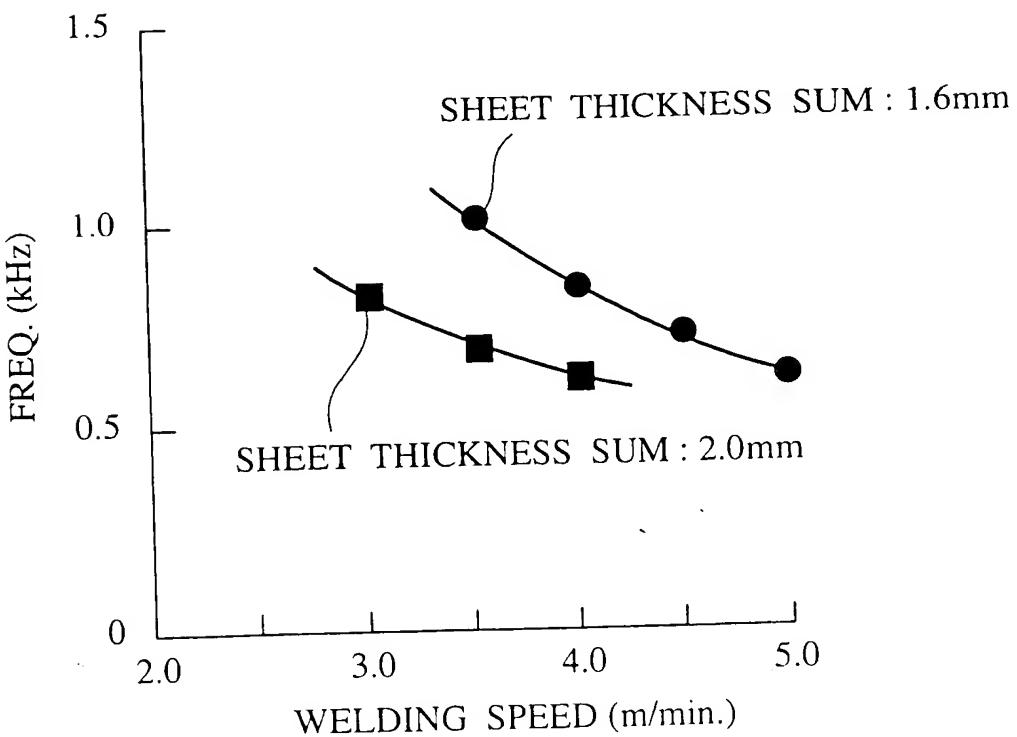


FIG.14



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FIG.15

TABLE-1

		UPPER SHEET t_1		
LOWER/UPPER		0.8mm	1.0mm	1.2mm
LOWER SHEET t_2	0.8mm	3.5m/min.	3.5m/min.	3.5m/min.
	"	4.0m/min.		
	"	4.5m/min.		
	"	5.0m/min.		
	1.0mm	3.5m/min.		
	1.2mm	3.0m/min.		
	"	3.5m/min.		3.5m/min.
	"	4.0m/min.		

FIG.16

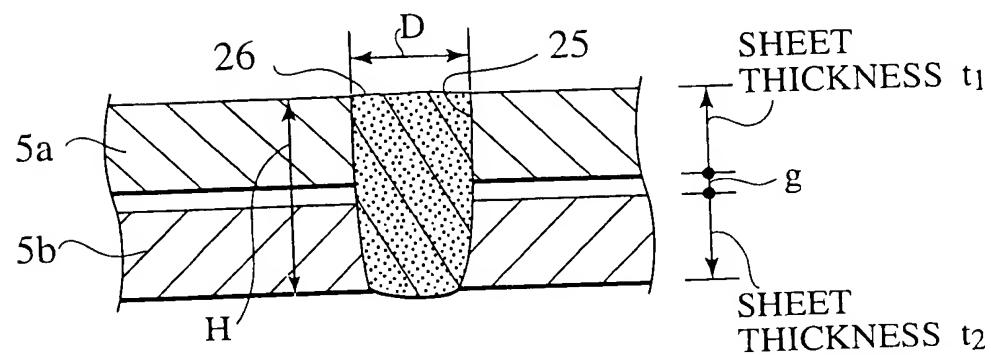
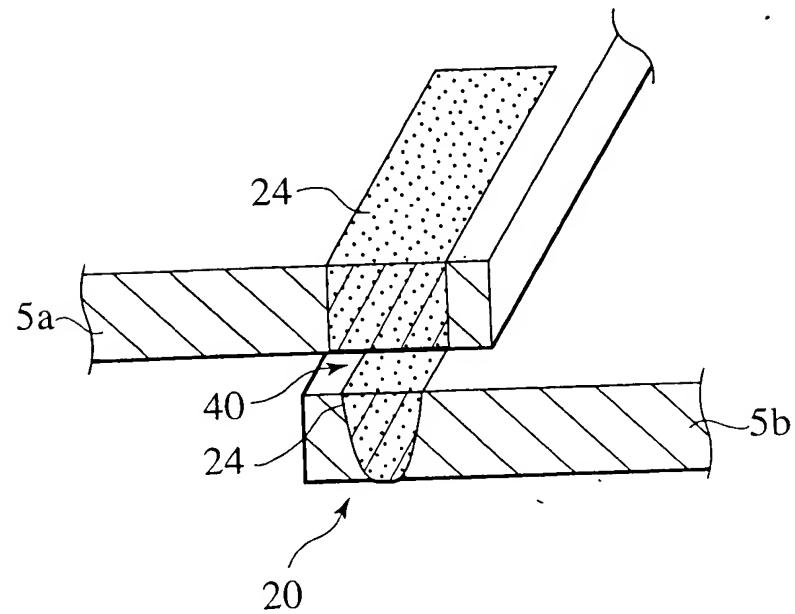
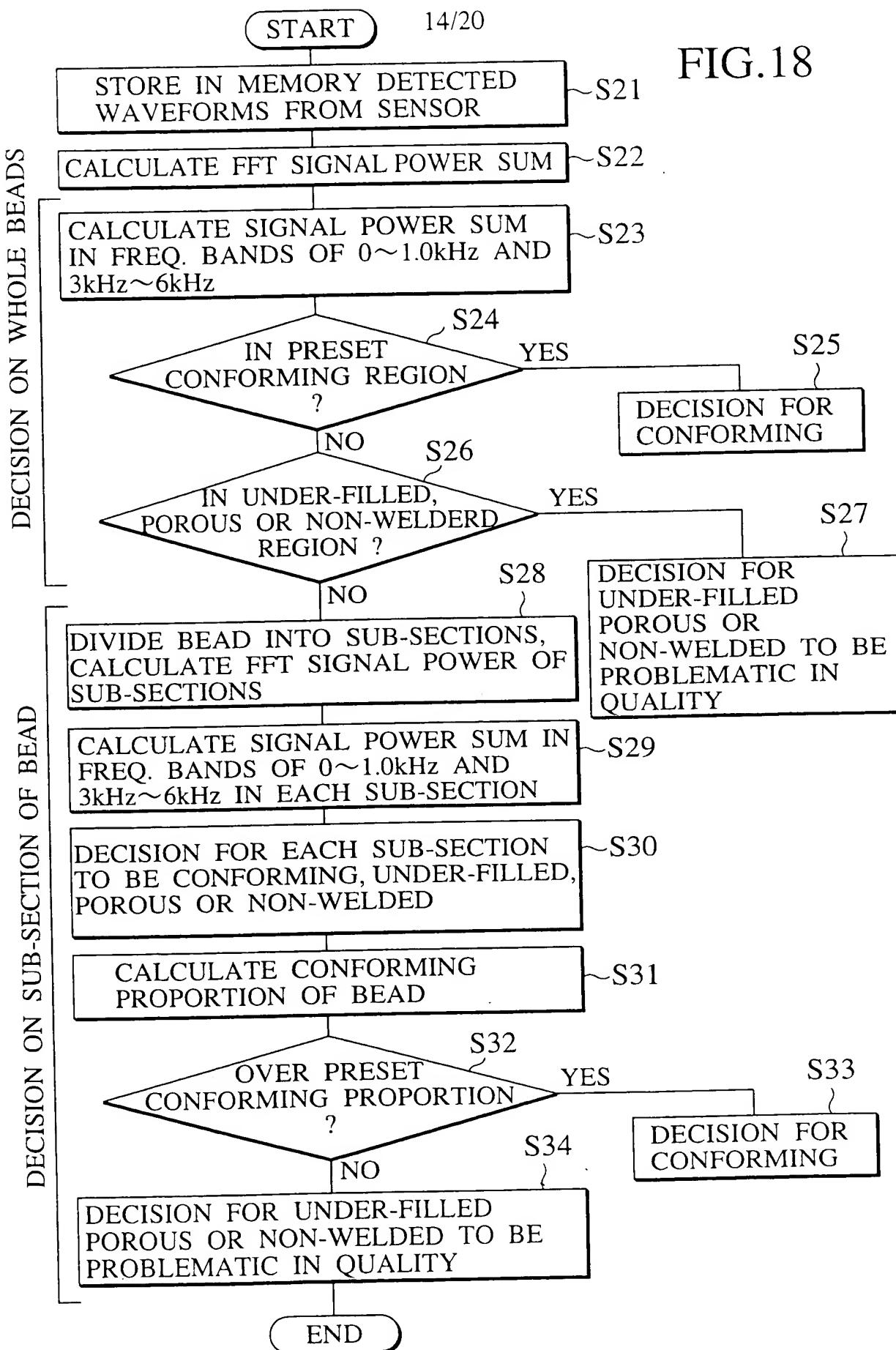


FIG.17



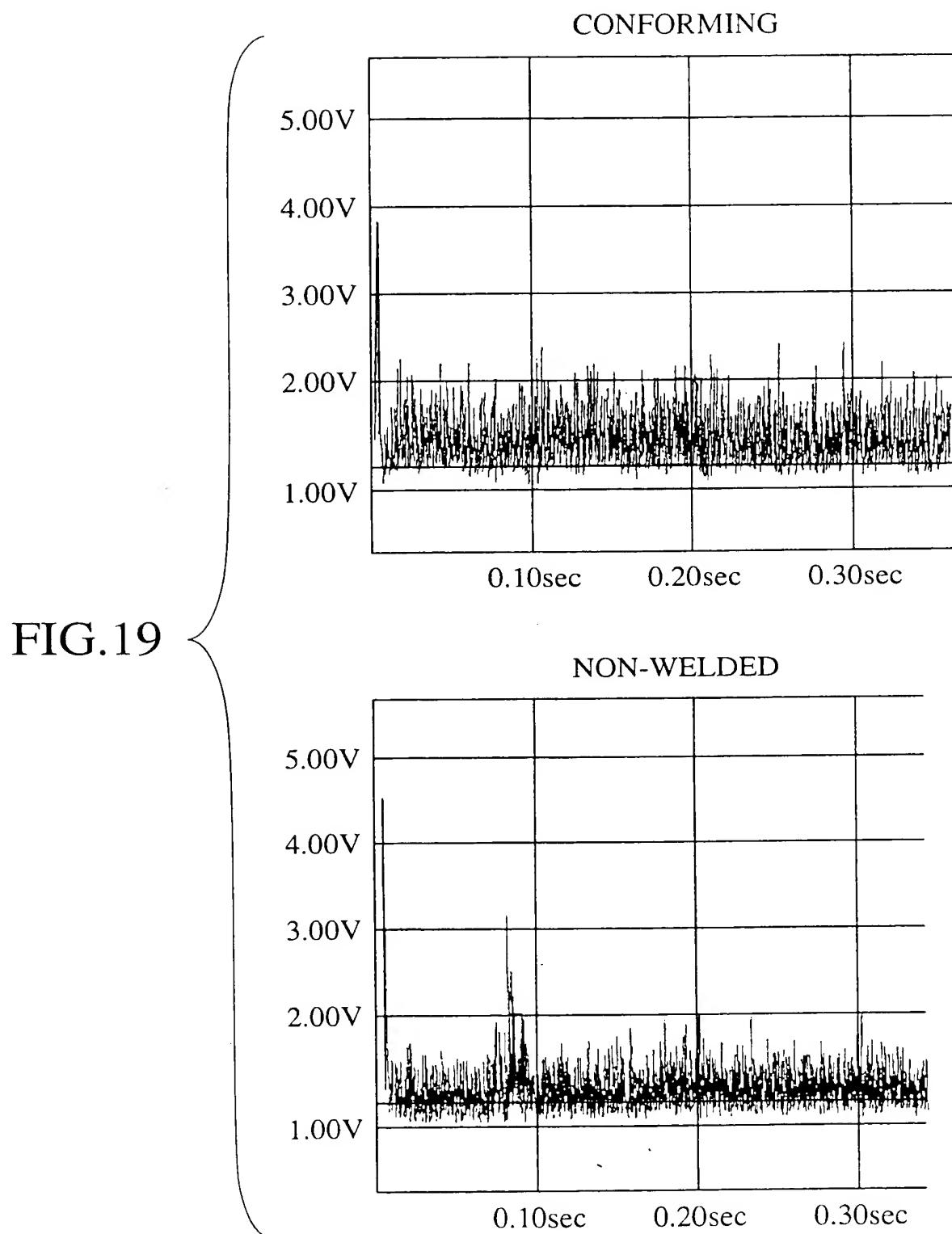


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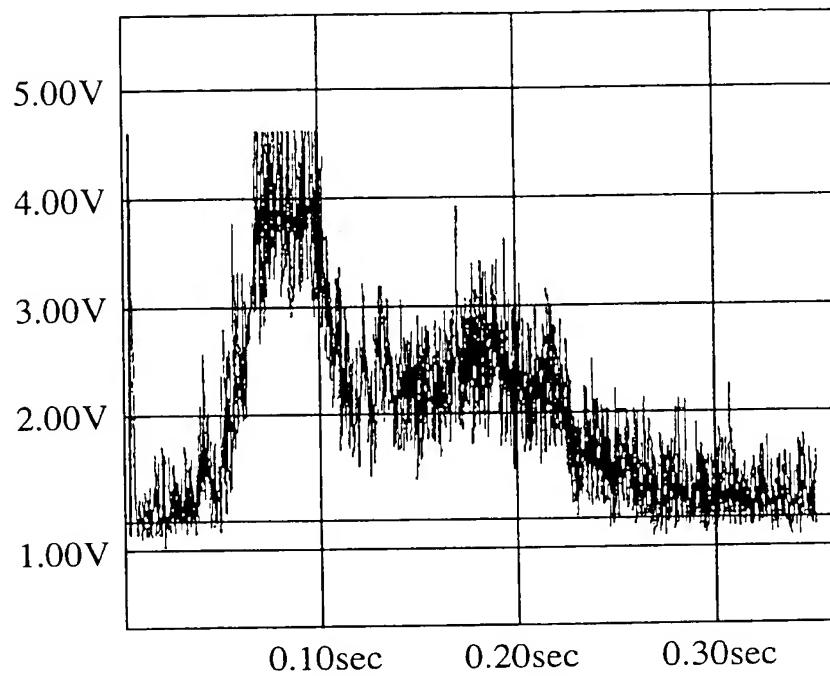
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FIG.20

UNDER-FILLED



POROUS

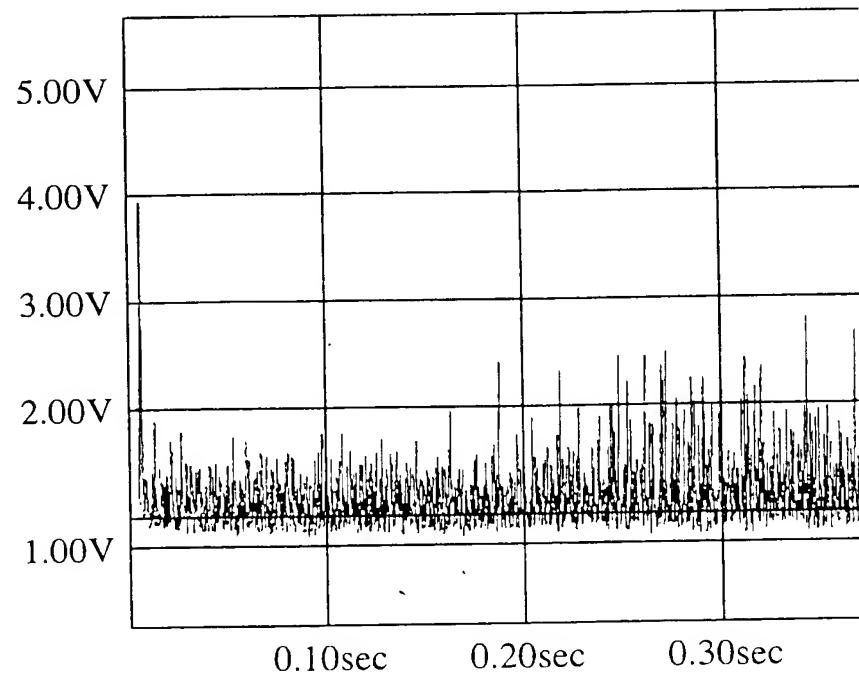


FIG.21

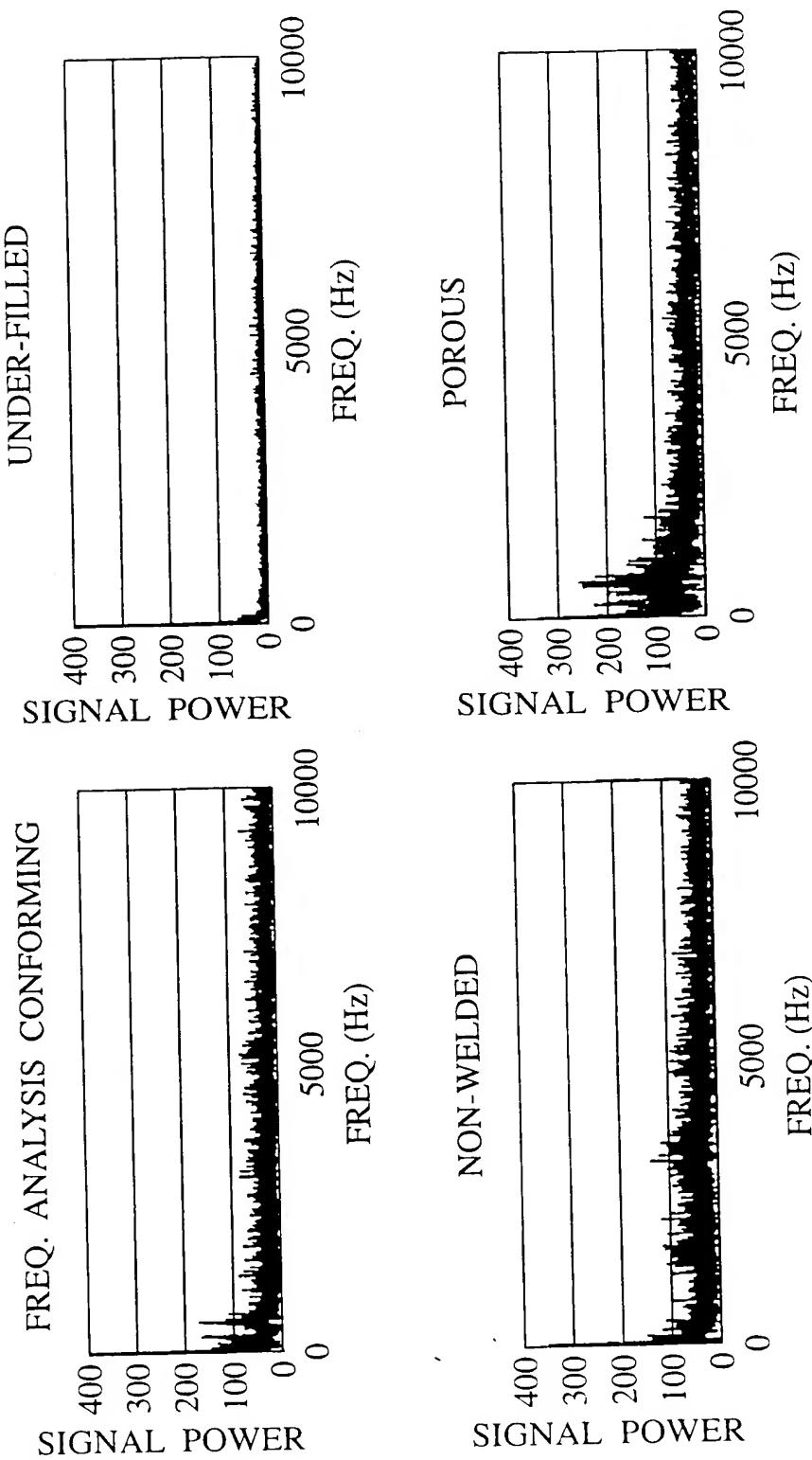


FIG.22

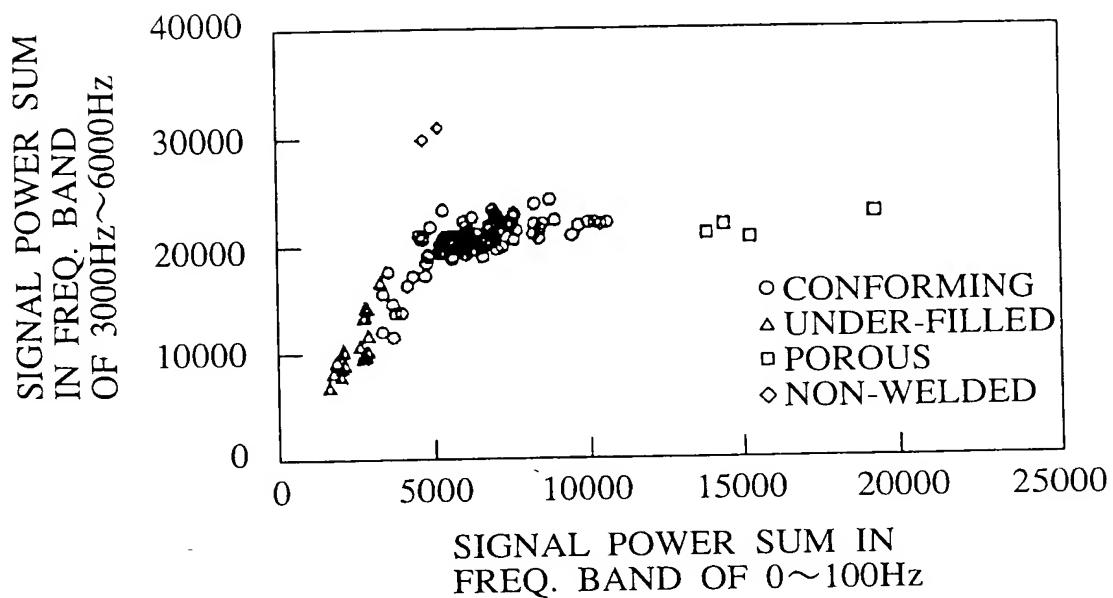


FIG.23

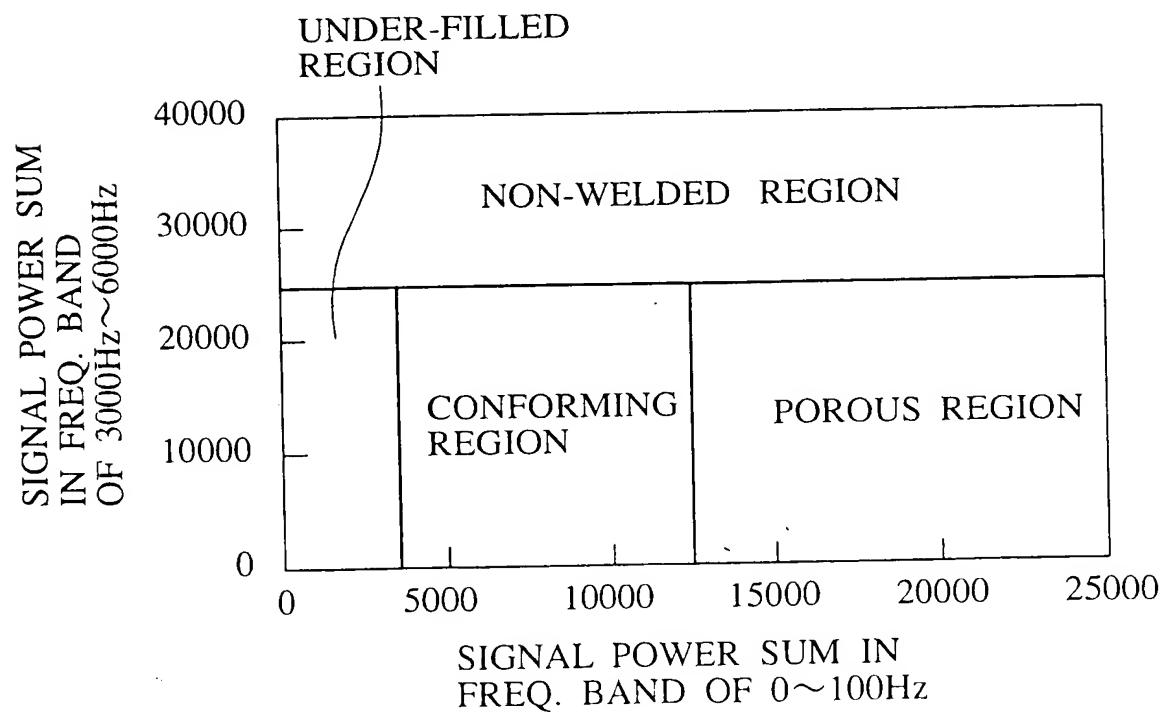
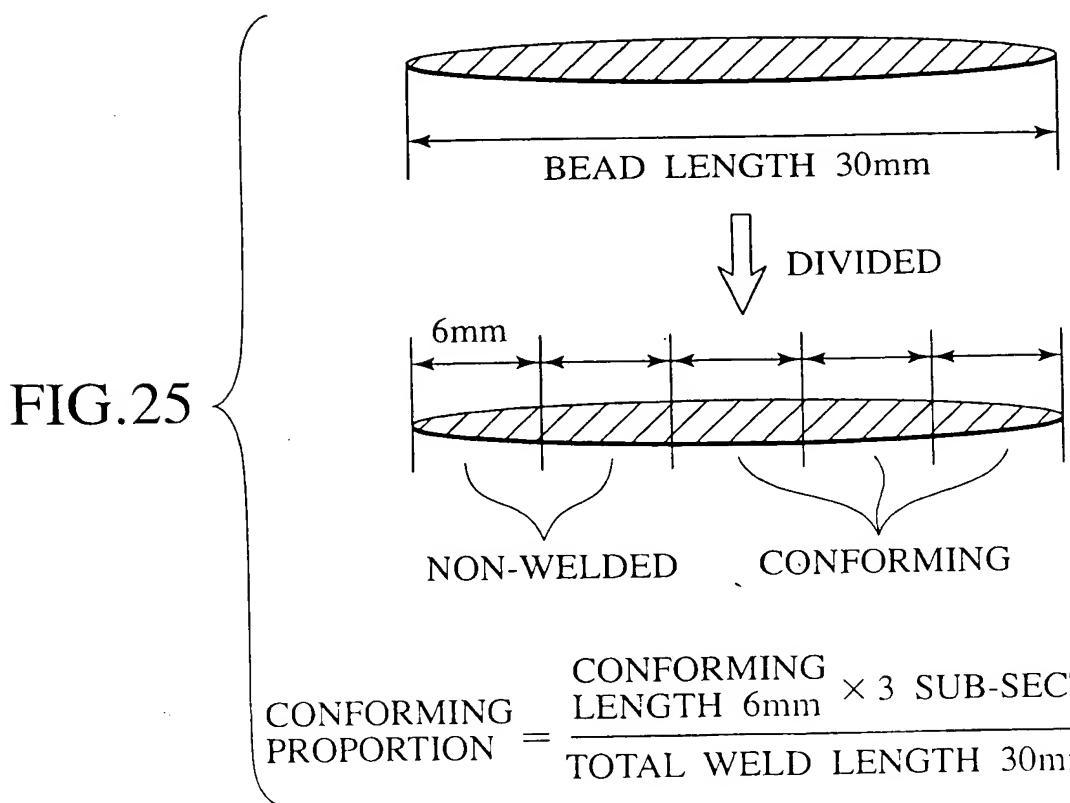
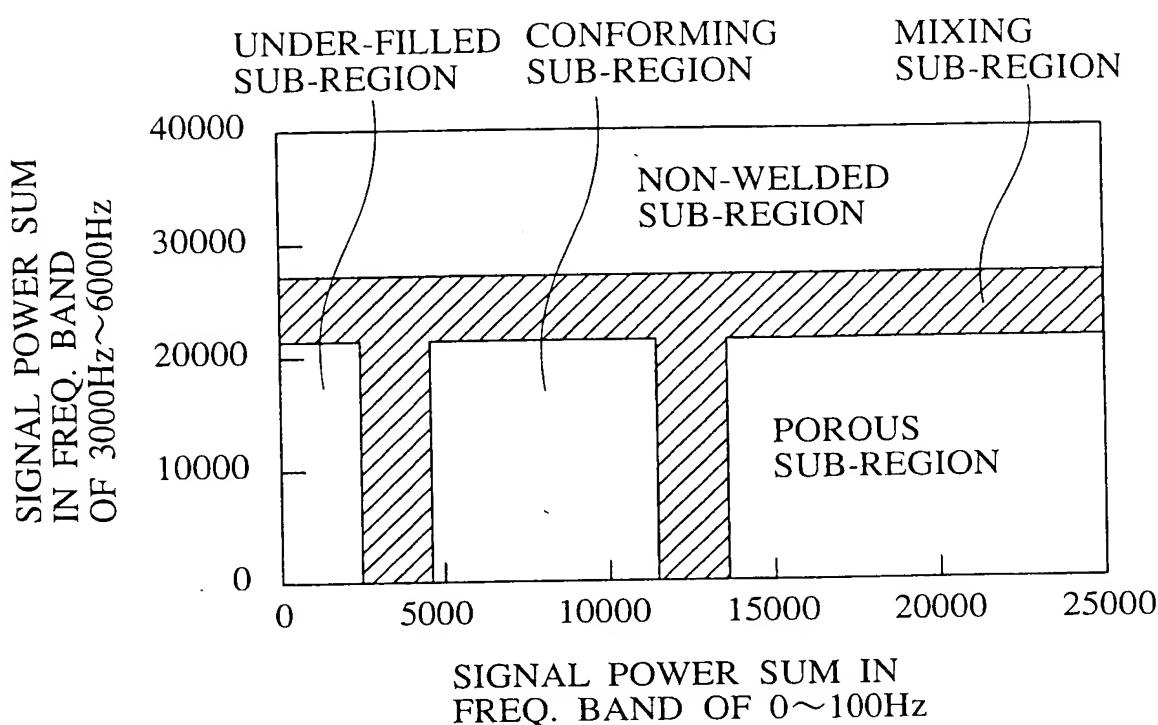


FIG.24



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FIG.26

